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## Claims:

1. A method for delivering multimedia data from a transmitter to each of a plurality of receivers through a network, comprising the steps of:

at the transmitter,

5 a) delivering real-time multimedia data

in multicast to the receivers while storing the real-time multimedia data into a first memory;

b) when having received a time-shift transition command from a receiver, reading time-shifted multimedia data  
10 from the first memory depending on the time-shift transition command;

c) transmitting the time-shifted multimedia data in unicast to the receiver which originated the time-shift transition command;

15 at the receiver,

d) receiving the real-time multimedia data in multicast from the transmitter before transmitting the time-shift transition command; and

e) receiving the time shifted multimedia data in  
20 unicast from the transmitter after transmitting the time-shift transition command.

2. The method according to claim 1, wherein the step

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a) comprises:

adding a time stamp to each transmission block size  
of the real-time multimedia data;

storing the real-time multimedia data with time  
5 stamps into the first memory; and

delivering the real-time multimedia data with time  
stamps to the receivers.

3. The method according to claim 2, further comprising  
the steps of:

10 at each of the receivers,

creating a thumbnail picture from the  
real-time multimedia data received from the transmitter each  
time an amount of real-time multimedia data per unit time exceeds  
a predetermined level; and

15 storing thumbnail pictures with corresponding time  
stamps into a second memory so as to designate a desired thumbnail  
picture, allowing a desired location of the real-time multimedia  
data to be designated.

4. The method according to claim 3, further comprising  
20 the steps of:

when a time-shift request occurs, creating a  
time-shift transition command based on the thumbnail pictures  
with the corresponding time stamps stored in the second memory;  
and

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Transmitting the time-shift transition command to the transmitter so as to receive time-shifted multimedia data from the transmitter in unicast.

5. The method according to claim 1, wherein the  
5 time shift transition command is one of a replay start location designation command, a pause command, a reverse command, a slow-replay command, and a fast-forward command.

6. The method according to claim 1, further comprising the steps of:  
10 at each of the receivers,  
storing the real-time multimedia data received from the transmitter into a third memory; and  
when a time-shift request occurs, reading  
time-shifted multimedia data from the third memory depending  
15 on the time-shift request.

7. The method according to claim 1, further comprising the steps of:  
at the transmitter,  
managing a delivery status including a transmission  
20 status, a transmission mode, and time information for each of the receivers.

8. A method for delivering multimedia data from a

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transmitter to each of a plurality of receivers through a network,  
comprising the steps of:

when having received a start request command from  
a receiver, the transmitter delivering real-time multimedia  
5 data in multicast to the receiver while storing the  
real-time multimedia data into a first memory;

when having received a time-shift transition  
command from the receiver, reading time-shifted multimedia data  
from the first memory depending on the time-shift transition  
10 command, to transmit the time-shifted multimedia data in unicast  
to the receiver which originated the time-shift transition  
command; and

when having received a termination request command  
from the receiver, the transmitter terminating multimedia data  
15 delivery to the receiver.

9. A system for delivering multimedia data from a  
transmitter to each of a plurality of receivers through a network,  
wherein

the transmitter comprises:

20 an input section for inputting real-time multimedia data;  
a multicast transmitter for transmitting the  
real-time multimedia data to each of the receivers;  
a first unicast transceiver for receiving a command from  
a receiver and transmitting a response to the receiver;  
25 a command analyzer for analyzing a command received from

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the receiver to determine a type of the received command;  
a first memory for storing the real-time multimedia data;  
and  
a first controller controlling the multicast transmitter,  
5 the unicast transceiver and the first memory, such that the  
real-time multimedia data is delivered in multicast to each  
of the receivers while storing the real-time multimedia data  
into the first memory, wherein, when having received a time-shift  
transition command from a receiver, time-shifted multimedia  
10 data is read from the first memory depending on the time-shift  
transition command and is transmitted in unicast to the receiver  
which originated the time-shift transition command, and  
each of the receivers comprises:  
a multicast receiver for receiving the  
15 real-time multimedia data from the transmitter;  
a second unicast transceiver for transmitting a command  
to the transmitter and receiving a response to the command from  
the transmitter; and  
a second controller controlling such that the  
20 real-time multimedia data is received in multicast from the  
transmitter before transmitting the time-shift transition  
command, and the time-shifted multimedia data is received in  
unicast from the transmitter after transmitting the time-shift  
transition command.

25 10. The system according to claim 9, wherein the first

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controller adds a time stamp to each transmission block size of the real-time multimedia data, stores the real-time multimedia data with time stamps into the first memory, and delivers the real-time multimedia data with time stamps  
5 to the receivers.

11. The system according to claim 10, wherein each of the receivers further comprises a second memory, wherein the second controller creates a thumbnail picture from the real-time multimedia data received from the transmitter each  
10 time an amount of real-time multimedia data per unit time exceeds a predetermined level, and stores thumbnail pictures with corresponding time stamps into the second memory so as to designate a desired thumbnail picture, allowing a desired location of the real-time multimedia data to be designated.

12. The system according to claim 11, wherein when a  
15 time-shift request occurs, the second controller creates a time-shift transition command based on the thumbnail pictures with the corresponding time stamps stored in the second memory, and controls the second unicast transceiver to transmit the  
20 time-shift transition command to the transmitter so as to receive time-shifted multimedia data from the transmitter.

13. The system according to claim 9, wherein each of the receivers further comprises a third memory, wherein the

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second controller stores the real-time multimedia data received from the transmitter into the third memory and, when a time-shift request occurs, reads time-shifted multimedia data from the third memory depending on the time-shift request.

5           14.    The system according to claim 9, wherein the first controller manages a delivery status including a transmission status, a transmission mode, and time information for each of the receivers.

10           15.    A transmitter for delivering multimedia data to each of a plurality of receivers through a network, comprising:

                  an input section for inputting real-time multimedia data;

                  a multicast transmitter for transmitting the real-time multimedia data to each of the receivers;

15                a unicast transceiver for receiving a command from a receiver and transmitting a response to the receiver;

                  a command analyzer for analyzing a command received from the receiver to determine a type of the received command;

                  a memory for storing the real-time multimedia data;

20           and

                  a controller controlling the multicast transmitter, the unicast transceiver and the memory, such that the real-time multimedia data is delivered in multicast to each of the receivers while storing the real-time multimedia data

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into the memory, wherein, when having received a time-shift transition command from a receiver, time-shifted multimedia data is read from the memory depending on the time-shift transition command and is transmitted in unicast to the receiver  
5 which originated the time-shift transition command.

16. A receiver for receiving multimedia data from a transmitter through a network, comprising:

a multicast receiver for receiving  
real-time multimedia data from the transmitter;

10 a unicast transceiver for transmitting a time-shift transition command to the transmitter and receiving a response to the time-shift transition command from the transmitter; and

a controller controlling such that the  
real-time multimedia data is received in multicast from the  
15 transmitter before transmitting the time-shift transition command, and the time-shifted multimedia data is received in unicast from the transmitter after transmitting the time-shift transition command.

17. A program instructing a computer to  
20 deliver multimedia data to each of a plurality of receivers through a network, comprising the steps of:

a) delivering real-time multimedia data  
in multicast to the receivers while storing the  
real-time multimedia data into a memory;



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b) when having received a time-shift transition command from a receiver, reading time-shifted multimedia data from the memory depending on the time-shift transition command; and

5 c) transmitting the time-shifted multimedia data in unicast to the receiver which originated the time-shift transition command.

18. A program instructing a computer to receive multimedia data from a transmitter through a network, comprising the steps of:

10 receiving real-time multimedia data in multicast from the transmitter;

transmitting a time-shift transition command to the transmitter; and

15 after receiving a response to the time-shift transition command from the transmitter, receiving time-shifted multimedia data in unicast from the transmitter.